Patent Claims

1. Workstation for providing samples comprising at least
   (i) a platform, which has at least one module with at least one reservoir for a chemical educt and at least one module with at least one target container,
   (ii) a metering system for the metering of the sample,
   (iii) a portal system, which is arranged above the platform and which maneuvers the metering system in all three directions in space,
   (iv) a control device for controlling the movements of the metering system, and
   (v) a measuring system for the samples,
   characterized in that the metering system has a gripper device for the uptake of a metering tool, which is supported within at least one module on the platform.

2. Workstation according to claim 1, characterized in that the gripper device has four support means being faced diametrically, which are movable in a concentric manner towards each other.

3. Workstation according to claim 2, characterized in that two support means are supported in a pair of linear orientated slide bars, respectively, wherein the pairs of slide bars are arranged perpendicularly towards each other.

4. Workstation according to claim 2 or 3, characterized in that the support means have a geometry, which allows a form-complementary clamping with the geometry of the metering tool.

5. Workstation according to claim 4, characterized in that the support means are exchangeable.

6. Workstation according to claim 5, characterized in that the support means have a breaking point, in such a way that by breaking of said breaking point an overload of the gripper device or of the object gripped therewith is minimized or avoided.

7. Workstation according to claim 6, characterized in that the support means has an adhesion layer for an increased adhesion.

8. Workstation according to any one of claims 2 to 7, characterized in that support means are movable by means of electrically activated jackscrews.

9. Workstation according to any one of claims 2 to 8, characterized in that the support means are activated pneumatically for the clamping.

10. Workstation according to any one of claims 2 to 9, characterized in that the support means are coupled with at least one sensor, which controls the clamping process.

11. Workstation according to any one of the preceding claims, characterized in that the measuring system is arranged as module on the platform.

12. Workstation according to any one of claims 1 to 10, characterized in that the measuring system is integrated within the metering system.

13. Workstation according to claim 12 characterized in that the measuring system is a gravimetric load cell.

14. Workstation according to any one of the preceding claims, characterized in that the metering system has a pump and a connection for a liquid.

15. Workstation according to any one of the preceding claims, characterized in that the metering system has a vibration device in order to excite the metering tool into a defined vibration.

16. Workstation according to any one of the preceding claims, characterized in that the platform further has at least one module with a heating device and/or at least one module with a mixing device.

17. Workstation according to any one of the preceding claims, characterized in that the metering system has at least one sensor for the detection of the position of the modules.

18. Workstation according to claim 17, characterized in that the modules have at least one marking, which is detectable by the sensor.

19. Metering tool for the use in a workstation according to any one of claims 1 to 18, characterized in that the metering tool is a carrier surface for carrying a solid, powdery educt.

20. Metering tool according to claim 19, characterized in that the carrier surface is rotationally symmetrical.

21. Metering tool according to claim 19 or 20, characterized in that the metering tool has a support section with a geometry for a form-complementary clamping in support pins of a metering system.

22. Metering tool according to claim 21, characterized in that the metering tool has another support section with a geometry for a form-complementary bedding in a module on a platform.

23. Metering tool according to any one of claims 20 or 22, characterized in that the carrier surface has at the radial external side a limiting edge.

24. Metering tool according to claim 23, characterized in that an incline and a height of the limiting edge is defined in dependence on the solid, powdery educt to be taken up.

25. Metering tool for the use in a workstation according to any one of the preceding claims 1 to 18, characterized in that the metering tool is a pipette for the uptake of a liquid educt.

26. Metering tool according to claim 25, characterized in that the metering tool has a support section with a geometry for a form-complementary clamping in support pins of a metering system.

27. Metering tool according to claim 26, characterized in that the metering tool has another support section with a geometry for a form-complementary bedding within a module on a platform.

28. Metering tool according to any one of claims 25 to 27, characterized in that the metering tool has an adapter for the connection with an adapter for liquids of a metering system.

29. Process for providing a sample of a defined metering quantity using the workstation according to the claims 1 to 18, which comprises the following steps:

- inserting of samples into reservoirs on modules of a platform,
- determination of the positions of the individual modules with the reservoirs and target containers,
- uptake of a metering tool,
- uptake of a sample quantity from a reservoir, and
- dispense of a sample quantity into a target container,

characterized in that the uptake of a sample quantity is repeated until the required quantity is achieved, wherein an already metered sample quantity and a sample quantity, which is again taken up by the metering tool, is controlled gravimetrically and the difference with the required metering quantity is compensated.

30. Process according to claim 29, characterized in that the step of the uptake of a sample quantity comprises at least one of the following steps:

- spiral dunking of the metering tool into the reservoir,
- dunking of a metering tool which is excited by vibration,
- stepwise dunking of the metering tool,
- stepwise dunking of the metering tool at positions which are determined by random generator,
- vertical pull out from the reservoir,
- stepwise pull out from the reservoir.

31. Process according to claim 29 or 30, characterized in that the step of the dispense of the sample quantity comprises:

- locating of the metering tool over the target container, and
- vibration of the metering tool.

32. Process according to claim 31, characterized in that the vibration duration and the vibration intensity are adjusted continuously in dependence on the required metering quantity.